

What Is Claimed Is:

1. A flexible heater comprising:
a flexible planar body having
a conductive resistance pathway including at least one
5 conductive resistance flexible strand of material; and
a temperature dependent variable resistance pathway having at
least one temperature dependent variable resistance
flexible strand of material;
wherein the conductive resistance pathway and the temperature
10 dependent variable resistance pathway have different routes in
the flexible planar body.
2. The flexible heater according to Claim 1, wherein the conductive
resistance pathway includes a plurality of conductive resistance flexible
strands of material.
- 15 3. The flexible heater according to Claim 2, wherein the conductive
resistance pathway further includes a supply bus flexible strand of material
electrically connected with the conductive resistance flexible strands of
material.
- 20 4. The flexible heater according to Claim 2, wherein the conductive
resistance pathway further includes a first supply bus flexible strand of
material and a second supply bus flexible strand of material, and where in the
conductive resistance flexible strands of material are electrically connected in
parallel between the first supply bus flexible strand of material and the second
supply bus flexible strand of material.
- 25 5. The flexible heater according to Claim 1, wherein the
temperature dependent variable resistance flexible strand of material has a
positive coefficient of temperature to resistance.

6. The flexible heater according to Claim 1, wherein the temperature dependent variable resistance flexible strand of material has a negative coefficient of temperature to resistance.

5 7. The flexible heater according to Claim 1, wherein the temperature dependent variable resistance pathway includes a plurality of temperature dependent variable resistance strands of material.

8. The flexible heater according to Claim 7, wherein the temperature dependent variable resistance strands of material are electrically connected in series.

10 9. The flexible heater according to Claim 7, wherein the temperature dependent variable resistance pathway further includes a connection bus flexible strand of material, and wherein the temperature dependent variable resistance strands of material are electrically connected in series by the connection bus flexible strand of material.

15 10. The flexible heater according to Claim 7, wherein the temperature dependent variable resistance pathway further includes a first connection bus flexible strand of material and a second connection bus flexible strand of material, and wherein the temperature dependent variable resistance strands of material are electrically connected in series by the first
20 connection bus flexible strand of material and the second connection bus flexible strand of material.

11. The flexible heater according to Claim 1, where in the flexible body further includes a plurality of non-conductive flexible strands of material.

25 12. The flexible heater according to Claim 11, wherein the plurality of non-conductive flexible strands of material of the flexible planar body are interlaced.

13. The flexible heater according to Claim 1, wherein the conductive resistance pathway crosses the temperature resistance dependent variable

resistance pathway in at least one crossing location, wherein the conductive resistance pathway crosses the temperature resistance dependent variable resistance pathway in about a substantially perpendicular direction.

5 14. The flexible heater according to Claim 1, wherein the conductive resistance flexible strand of material comprises a conducting resistance yarn.

 15. The flexible heater according to Claim 14, wherein the conductive resistance pathway includes a plurality of conductive resistance yarns.

10 16. The flexible heater according to Claim 15, wherein the conductive resistance pathway further includes a first and a second supply bus yarn, and where in the conductive resistance yarns are electrically connected in parallel between the first supply bus yarn and the second supply bus yarn.

15 17. The flexible heater according to Claim 14, wherein the temperature dependent variable resistance flexible strand of material comprises a temperature dependent variable resistance yarn.

 18. The flexible heater according to Claim 17, wherein the temperature dependent variable resistance yarn has a positive coefficient of temperature to resistance.

20 19. The flexible heater according to Claim 17, wherein the temperature dependent variable resistance yarn has a negative coefficient of temperature to resistance.

25 20. The flexible heater according to Claim 17, wherein the temperature dependent variable resistance pathway includes a plurality of temperature dependent variable resistance yarns.

 21. The flexible heater according to Claim 20, wherein the temperature dependent variable resistance yarns of the temperature dependent variable resistance pathway are electrically connected in series.

22. The flexible heater according to Claim 21, wherein the temperature dependent variable resistance pathway includes a connection bus yarn, and wherein the temperature dependent variable resistance yarns are electrically connected in series by the connection bus yarn.

5 23. The flexible heater according to Claim 21, wherein the temperature dependent variable resistance pathway further includes a first connection bus yarn and a second connection bus yarn, and wherein the temperature dependent variable resistance yarns are electrically connected in series by the first connection bus yarn and the second connection bus yarn.

10 24. The flexible heater according to Claim 14, wherein the flexible body further comprises a plurality of non-conductive yarns.

25. The flexible heater according to Claim 24, wherein the plurality of non-conductive yarns of the flexible planar body are woven together.

15 26. The flexible heater according to Claim 14, wherein the conductive resistance pathway crosses the temperature resistance dependent variable resistance pathway in at least one crossing location, wherein the conductive resistance pathway crosses the temperature resistance dependent variable resistance pathway in about a substantially perpendicular direction.